

## PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PCT227/548 AK</b>	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/FI2004/050161</b>	International filing date (day/month/year) <b>11-11-2004</b>	Priority date (day/month/year) <b>11-11-2003</b>
International Patent Classification (IPC) or national classification and IPC <b>See Supplemental Box</b>		
Applicant <b>Antero Heinonen</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
    - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

Date of submission of the demand <b>05-09-2005</b>	Date of completion of this report <b>31-01-2006</b>
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**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

PCT/FI2004/050161

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Cover sheet**

**INTERNATIONAL PATENT CLASSIFICATION (IPC) :**

**F24C 15/20 (2006.01)**

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2004/050161

## Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 10 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages\* 12 - 13 received by this Authority on 05-12-2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- pages 1 - 4 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2004/050161

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-10</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-10</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-10</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

Reference is made to the following document:

D1: US 40389152 A

Document D1, which is considered to represent the most relevant state of the art, discloses a grease-hood system including an entry portion (142, fig. 4) corresponding to the claimed hood (10), and a forced-flow portion (105) including a filter (112) and corresponding to the claimed "cell (14)". Further, the forced-flow portion (105) has an intake-air connection (111) for leading intake air into the portion 105 to alter the temperature and/or flow of the exhaust air (column 3 line 67 - column 4 line 13). The subject matter of claim 1 differs from the previously known device in view of the actual regulation of the temperature and flow. Thus, the amended claim 1 states that the system includes a temperature sensor, a heat exchanger, a motor and a damper by which the velocity, quantity, and/or temperature of the intake air can be regulated in view of actual temperature, compared to the device in D1, which alters the temperature and flow by its special design only.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may therefore be regarded as obtaining an arrangement that can optimize the temperature and velocity in each different circumstance.

.../...

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: Box V

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) while none of the documents mentioned in the International Search Report reveal such a special temperature/flow control.

Claims 2-10 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

There is no reason to doubt the industrial applicability of the invention.

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## CLAIMS

1. An arrangement in the ventilation of a kitchen appliance, which arrangement is arranged to be connected to a ventilation system, and which arrangement includes
- at least one hood (10), which is intended to be installed above the kitchen appliance (11),
  - an exhaust-air connection (27) in each hood (10), for connecting the hood (10) to the exhaust-air duct (12) belonging to the ventilation system,
  - a separator (15), for separating grease from the exhaust air,
  - a cell (14) arranged after the hood (10), to which a separator (15) is fitted, and which is connected to the exhaust-air duct (12), and the cell (14) includes a connection (26) for leading the exhaust air from the hood (10) to the cell (14), and
  - an intake-air connection (25) in the cell (14) for leading intake air into the cell (14) and thus for using the intake air to alter the temperature and/or flow of the exhaust air,
- in which arrangement the cell (14) is arranged separate from the hood (10), and there are means (17 - 20) for regulating the velocity, quantity, and/or temperature of the air mixed in the cell (14) in such way that the velocity, quantity, and temperature of the air mixed in the cell (14) are as desired in contact with the separator (15), characterized in that the means (17 - 20) include a temperature sensor (18) arranged in the cell (14) in connection with the separator (15) as well as a heat exchanger (17), a motor (19), and a damper (20) arranged in connection with the intake-air connection (25) for regulating the velocity, quantity, and/or temperature of the intake air, and the heat exchanger (17), the motor (19), and the damper (20) are connected to the temperature sensor (18) for controlling them.
2. An arrangement according to Claim 1, characterized in that the cell (14) is an elongated structure and the connection (26)

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is fitted to the opposite end of the cell (14) to the separator (15).

3. An arrangement according to Claim 1 or 2, characterized in that the ventilation system, the cell (14) is fitted essentially horizontally relative to its longitudinal axis.

4. An arrangement according to any of Claim 1 - 3, characterized in that, in order to feed intake air into the exhaust air, the cell (14) includes a distribution duct (23) and nozzle elements (21) connected to it.

5. An arrangement according to any of Claims 1 - 4, characterized in that the intake-air connection (25) is connected to the intake-air duct (13) belonging to the ventilation system.

6. An arrangement according to any of Claims 1 - 5, characterized in that the cell (14) includes baffle elements (28) for guiding the flow of the exhaust air in the cell (14).

7. An arrangement according to any of Claims 1 - 6, characterized in that the cell (14) includes washing elements (31) for distributing washing liquid to the cell (14) and/or the separator (15).

8. An arrangement according to any of Claims 1 - 7, characterized in that the width of the cell (14) is 1,1 - 2,0 times, preferably 1,2 - 1,8 times the width of the exhaust-air duct (12), in order to form a mixing chamber.

9. An arrangement according to any of Claims 1 - 8, characterized in that the length of the cell (14) is 2 - 6 times, preferably 3 - 5 times the width of the cell (14).

10. An arrangement according to any of Claims 1 - 9, characterized in that the cubic capacity of the cell (14) is at least 10 % of the minute volume of the flow of exhaust air.